

## Memorandum

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Subject: Estimated Dietary Exposure to PCBs based on 2003 Total Diet Study Results

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In response to your June 11, 2014 request for PCB exposure estimates beyond those provided in an August 24, 2012 memo from Katie Egan of FDA-CFSAN to Geniece Lehmann (EPA-NCEA), we are providing PCB exposure estimates for all standard Total Diet Study (TDS) age/gender subgroups.

The exposure estimates provided in the August 24, 2012 memo were based on FDA Total Diet Study (TDS) results from 1993-94 and from 2003. The exposure estimates provided here are based only on data from 2003. The TDS program no longer includes analysis of total PCBs.

The 2003 TDS data are based on analyses of total PCB concentrations in four quarterly samples of each of about 280 foods and beverages. Total PCBs were analyzed using a multi-residue method that determined a total PCB concentration based on a comparison to Aroclor 1254. The Limit of Quantification (LOQ) at the time of the 2003 analyses was 14 ng/g (ppb). The Limit of Detection (LOD) for the TDS PCB method was estimated by the analytical laboratory to be about 1/3 of the LOQ. PCB concentrations were reported for 5 samples collected over the four quarterly market baskets (Table 1). Samples with no detected PCBs (i.e., non-detects) were assumed to have concentrations of zero.

Dietary exposures were estimated by multiplying the mean PCB levels times the consumption amounts of those foods based on the 2003 TDS Diets. The 2003 TDS Diets were derived from results of USDA's 1994-98 Continuing Survey of Food Intakes by Individuals (94-98 CSFII), during which dietary data were collected for two non-consecutive days for most survey participants. The TDS Diets represent 2-day average per capita (i.e. based on dietary records for all individuals in a specific age/gender group) consumption amounts of each TDS food for 14 age/gender subgroups. The methodology for compiling the TDS Diets was described by Egan et al. (2007).

PCB mean exposures were estimated as ng/day and then converted to ng/kg body weight/day using mean body weights for 1994-98 CSFII respondents in each age/gender subgroup (Table 2). Estimated PCB exposure was highest for males ages 70 plus on the daily basis (211 ng/day); estimated PCB exposure per kg body weight was highest for females ages 60-65 years and for males 70 plus years (3 ng/kg body weight/day for each group).

Table 1. TDS PCB results for 2003

Market Basket	Food #	Food Description	Level Found (µg/kg)
1	318	Salmon, baked	38
2	318	Salmon, baked	16
3	318	Salmon, baked	22
4	318	Salmon, baked	45
2	339	Catfish, pan cooked with oil	17

Table 2. PCB Exposure Estimates based on 2003 TDS Analytical Data for PCBs

Population group	Exposures based on 2003 TDS data and TDS diets (1994-98 CSFII, mean per capita 2-day averages)	
	(µg/person/day)	(µg/kg bw/day)
6-11 mo	0.004	0.000
2 yr	0.028	0.002
6 yr	0.043	0.002
10 yr	0.039	0.001
14-16 F	0.068	0.001
14-16 M	0.044	0.001
25-30 F	0.076	0.001
25-30 M	0.080	0.001
40-45 F	0.094	0.001
40-45 M	0.098	0.001
60-65 F	0.196	0.003
60-65 M	0.198	0.002
70+F	0.151	0.002
70+M	0.211	0.003
Total US	0.100	0.002

## Reference

Egan, S.K., P.M. Bolger and C.D. Carrington (2007). Update of US FDA's Total Diet Study food list and diets. *JESEE* (6):573-582.

